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In a major step towards meeting Health Insurance Portability and Accountability Act (HIPAA) standards, the Military Healthcare System (MHS) plans to implement an outpatient itemized billing system by October 2002. Over the last four years, there have been many different methods and systems used to collect and code outpatient encounter data. The purpose of this project is to evaluate and assess various methods of performing coding in the Walter Reed Army Medical Center (WRAMC) General Internal Medicine Clinic (GIMC) and determine whether current outpatient coding practice and data quality is sufficient for supporting itemized billing. The first part of this study involved a comparison on coding accuracy between providers in 1998 using a bubble sheet to code diagnoses and procedures (Gall, 1998), and the current study using an automated coding system. The results showed a decrease in International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) diagnosis coding correctness from 66% to 51% and a decrease in the average number of diagnoses recorded per encounter from 2.24 to 1.81. Evaluation and management (E&M) complexity coding accuracy worsened, showing a higher propensity towards over coding, increasing from 37% to 83% over coded. The second part of this study evaluated coding accuracy of a clinic initiative using medical clerks to code directly from provider written documentation. Evaluating and comparing the results using these and other methods of coding is essential to developing the best practices for accurate coding in the MHS. This study provides suggested interventions and process improvements to assist the organization in improving coding accuracy and overall data quality. More importantly, these interventions will help leadership reduce billing risk and remain focused on the core mission of providing quality care to military beneficiaries.

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Transitioning to Itemized Billing in the Military Healthcare System: Are We Ready?

Evaluating Outpatient Coding Accuracy In the Walter Reed Army Medical Center General Internal Medicine Clinic

A Graduate Management Project

Submitted to the Faculty of Baylor University

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Abstract

In a major step towards meeting Health Insurance Portability and Accountability Act (HIPAA) standards, the Military Healthcare System (MHS) plans to implement an outpatient itemized billing system by October 2002. Over the last four years, there have been many different methods and systems used to collect and code outpatient encounter data. The purpose of this project is to evaluate and assess various methods of performing coding in the Walter Reed Army Medical Center (WRAMC) General Internal Medicine Clinic (GIMC) and determine whether current outpatient coding practice and data quality is sufficient for supporting itemized billing. The first part of this study involved a comparison on coding accuracy between providers in 1998 using a bubble sheet to code diagnoses and procedures (Gall, 1998), and the current study using an automated coding system. The results showed a decrease in International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) diagnosis coding correctness from 66% to 51% and a decrease in the average number of diagnoses recorded per encounter from 2.24 to 1.81. Evaluation and management (E&M) complexity coding accuracy worsened, showing a higher propensity towards over coding, primarily due to insufficient documentation. The second part of this study evaluated coding accuracy of a clinic initiative using medical clerks to code directly from provider written documentation. Evaluating and comparing the results using these and other methods of coding is essential to developing the best practices for accurate coding in the MHS. This study provides suggested interventions and process improvements to assist the organization in improving coding accuracy and overall data quality. More importantly, these interventions will help leadership reduce billing risk and remain focused on the core mission of providing quality care to military beneficiaries.

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Introduction

Total third party collections in the Military Healthcare System (MHS) have been on a downward trend for the last five years. This trend is mirrored at Walter Reed Army Medical Center (WRAMC), in Washington D.C., where third party collections in fiscal year (FY) 2001 were just $8.3 million compared to over $11 million in FY 1997 (Figure 1). The decrease in collections has occurred for a number of reasons including the implementation of TRICARE (the military managed care plan) at WRAMC in June 1998 and military downsizing over the last decade. Also, changes in medical practice and advances in technology have made it possible for many more surgical and diagnostic services to be performed in an outpatient setting (Aday, 1998). This explains the fact that while inpatient collections have fallen significantly, outpatient collections at WRAMC have actually steadily increased during this period. Outpatient collections were just $540,000 in FY 1994. By FY 1997, outpatient collections were almost $1.9 million, and they reached $3.1 million in FY 2001 (Figure 2). As this shift of workload from the inpatient to the outpatient setting continues, it is important to assess our outpatient collections program to ensure that we are maximizing reimbursements.

In October 2002, the MHS plans to transition to an itemized billing statement for outpatient third party collections. It is anticipated that itemization will help improve collections by capturing all aspects of care provided during patient visits. Rather than using the standard flat rate Department of Defense (DOD) reimbursement to bill a patient visit, facilities will be capturing information for billing based on actual procedures performed and ancillary services provided. In preparation for itemized billing, the TRICARE Management Activity (TMA) has directed that military treatment facilities (MTFs): (a) conduct internal assessments, (b) establish compliance plans, (c) review coding and medical record documentation procedures, (d) move to

electronic billing, (e) review staffing requirements, and (f) start a targeted training program (TRICARE Management Activity, 2001).

The primary issues to be addressed in this project are the accuracy of current diagnostic and procedural coding and the prospects for future improvements in the coding process. It examines the accuracy of outpatient coding performed by primary care physicians as compared to the accuracy of certified coding staff utilizing encounter data from the patient medical record. The second part of the study examines the possibilities and potential risks of medical coding performed by medical clerks rather than providers or professional coders. Quantifying coding errors of both commission and omission, both "upcoding" and "undercoding", this information will help the WRAMC leadership determine the extent to which itemized billing presents a risk management problem or an opportunity for increased resourcing.

Conditions Which Prompted The Study

In a follow-up to a study of outpatient coding accuracy conducted four years ago (Gall, 1998) within the General Internal Medicine Clinic (GIMC) at Walter Reed Army Medical Center (WRAMC), this project reviews coding accuracy and interventions that can be made to improve data quality. The previous study took place during the early implementation of the Ambulatory Data System (ADS), a system designed to capture clinic workload data through the use of bubble sheets to code diagnoses and procedures performed. The hard-copy ADS forms were cause for concerns about coding accuracy because they had an insufficient number of preprinted codes, codes were poorly organized on the encounter form, and providers had a lack of coding resources and assistance (Gall, 1998). Following a baseline assessment period, the impacts of several coding improvement interventions were assessed. Following those interventions, physician

diagnosis coding accuracy rose to 67% and evaluation and management (E/M) coding accuracy rose to 55% (Gall, 1998). Major opportunity for improvement remained.

Since then, the ADS form has been automated into the Ambulatory Data Module (ADM) within the Composite Health Care System (CHCS). Although the process has been automated, this clearly does not remove the potential for error from the coding process. Coding accuracy problems due to limited number of selections on the ADS bubble sheet have been replaced by an overly extensive list of diagnostic and procedure codes in ADM. To create an incentive for accurate provider coding, we must make the system as user-friendly as possible. The potential for error exists when the provider is pressed for time and may not be able to find the precise diagnosis that he or she is looking for. Some clinics have developed shortened diagnosis and procedure selection lists that are specific to work performed in their clinic. Although this may save time for providers, it has not become a standardized practice across the medical center. It is the intent of this study to reevaluate coding accuracy in the General Internal Medicine Clinic (GIMC) to determine whether coding accuracy has improved under the ADM system. As problems are identified, actions can be taken to implement further training, improve systems, or otherwise circumvent causes of any coding errors.

The implementation of itemized billing has the potential to underscore existing problems within our coding and billing processes. Successful transition to itemized billing will depend on coding competencies, defined as our processes for both minimizing downcoding (optimizing collections) and minimizing miscoding (avoiding charges of billing fraud) as based on optimal documentation in the medical record. Since prior provider interventions demonstrated a suboptimal improvement in coding accuracy, further work must focus on both the status of

current provider coding performance and the comparison of that current coding accuracy to the precision of trained coders.

Statement of the Problem

Under the upcoming itemized billing system, payers will be able to view our MHS bills with a detailed explanation of charges and compare those charges to facilities in the civilian sector. This represents a significant cultural change from our current reimbursement system where a flat outpatient clinic fee is assessed regardless of services provided or actual local facility costs. Providers at WRAMC have been responsible for coding of outpatient care, however, the MHS affords few incentives for providers to learn about coding accuracy and the importance of supporting medical record documentation. Recognizing that coding requirements have constricted actual time with patients, several clinics have experimented by allowing medical clerks to perform coding input. This study will assess the impact of allowing medical clerks to perform the responsibility of coding.

With prior documentation of frequent coding errors, further analysis of coding processes is essential to preclude greater risk management issues under an itemized system. We currently know little about the actual extent and type of coding inaccuracies and how they compare to accepted civilian standards for coding. Based on these issues, this project will address these primary research questions. How does the accuracy of current automated outpatient coding practice (KG-ADM) compare to coding accuracy four years ago using the ADS bubble sheet? How does current provider coding performance compare to the coding accuracy of trained coders? Based on cost effectiveness and minimization of risk, what is the most effective process for performing the function of outpatient coding? What measures can be taken to improve MHS readiness for itemized billing?

Literature Review

Finding an Incentive in the MHS

Physicians in private practice have an important incentive to improve the accuracy of their coding and billing processes: their salaries and livelihoods depend on it. In the military, that same level of awareness or incentive does not exist. Perhaps this is in part because collections from insurers are such a very small percentage of the overall military budget. At Walter Reed Army Medical Center, third party payments constitute just 5% of all healthcare funding. Additionally, while some MTFs reward provider productivity by distributing a percentage of third party collections to the responsible clinics, that practice is not followed at WRAMC. Clinicians at WRAMC who improve their clinical productivity and/or billing practices receive no reward for their efforts. In order to increase staff awareness and coding accuracy, we must be able to show how inaccurate coding affects much more than just third party collections. Resource allocation decisions, population health research, and demand management are just a few of the many areas that can be impacted by coding errors (Layman, 2001).

The complexity of coding and billing requirements can be puzzling to all providers. A case study by the Wayne State University School of Medicine involved developing a curriculum for training providers on accurate evaluation and management coding. The curriculum was oriented toward achieving 100% compliance with HCFA billing and coding guidelines through performance improvement in coding theory, chart auditing for coding, and other areas. Their efforts helped reduce overcoding errors by one third to 19.7% and undercoding errors were cut in half to just 8.4% (Rose, et. al, 2000). In the military, coding and billing concerns are rarely discussed and in-service time is devoted to other issues. In addition to educating our staff, what

incentives exist within the military healthcare system to ensure maximum accuracy in coding? Concerns about itemized billing stem largely from a military culture that does not fully understand the collections process or view it as a major part of their mission.

The Impact of Inaccurate Coding

The ability to perform accurate coding affects much more than just a facility's ability to bill and receive reimbursements for care. Inaccurate coding can lead to overbilling of insurers and allegations of fraud that quickly become both "front page news" and a major fiscal liability. Reports of overbilling and fraud indictments extend to all segments of the healthcare industry including for-profit and not-for-profit, medical schools, and department of defense medical facilities. At the end of May 2001, newspapers across Texas reported that Brooke Army Medical Center in San Antonio had over billed insurers. Allegations began more than four years ago, and an Army criminal investigation revealed in November 1999 that 88 percent of 5,000 billing records examined were fraudulent to the amount of $6.15 million. Army Surgeon General James Peake explained that the problem occurred because processes weren't being watched close enough and because some personnel were too focused on maximizing receipts (Abilene Reporter-News, 2001).

In July 2001, at the request of the Army Surgeon General, the U.S. Army Audit Agency began a six month audit of third party claims with the following objectives: a) evaluate Medical Command Policy related to third party claims, b) review procedures used to identify, bill, and collect claims from insurers, and c) evaluate management controls identified in Army regulations (Arielly, 2001). The audit is being conducted in 5 different medical centers in various regions across the United States. Walter Reed Army Medical Center is included in this audit. Under an itemized billing system, our leadership in the military healthcare system must be prepared to

defend the amounts that are charged for all procedures performed and ancillary services provided. Have we adequately prepared ourselves for the transition in order to contain further public pressures about our billing processes?

It is clear from this example that upcoding (which results in overbilling) can have grave implications for a healthcare system in terms of legal liability and public relations ramifications. This should not be a cause for providers to intentionally undercode either. With increased dissection of coding and documentation practices, many physicians have decided that it is safest to deliberately undercode (Hill, 2001). Another potential cause of undercoding is the complexity of the evaluation and management (E/M) coding system. A study reported in the Journal of the American Board of Family Practitioners found that physicians in civilian practices overcoded 16% of the time and undercoded 33% of the time (King, et. al, 2001). It is imperative that we improve coding accuracy to both protect our military facilities from claims of fraud and prevent the loss of millions in collections.

Why Change to Itemized Billing?

The current military system of billing is different than all others health plans in the United States, making it more difficult for payers to work our claims through their systems (Layman, 2001). The Health Insurance Portability and Accountability Act of 1996 (HIPAA) established national standards for electronic transactions in healthcare in an effort to reduce administrative costs on health plans. The goal within HIPAA regulation is to get all private and government sector health plans under the same standard for electronic claims and other transactions (Department of Health and Human Services, 2000). Itemized billing represents a major step toward MHS compliance with these published standards.

The current Department of Defense (DOD) reimbursement rate schedule uses a flat rate fee regardless of the complexity of the encounter. The fixed rates are published annually through the Department of Defense in accordance with Title 10, United States Code, section 1095. A single bill is generated using the outpatient rate, based on the MEPRS code (Medical Expense and Performance Reporting System), and insurers are billed for the patient visit. The flat rate applies regardless of patient acuity (complexity of care), quantity of ancillary services provided, or actual local facility costs. The vagueness of the military billing process has generated many denials from payers who desire more detailed information to support payment for services.

Two years ago, the Veterans Administration (VA) embarked on their own itemization system, referred to as reasonable charges billing. According to Jerry Robinson, Senior Analyst of Third Party Collections in the Office of the Assistant Secretary of Defense for Health Affairs, in the first year that the Veterans administration converted to a semi-itemized billing system, they lost approximately $71 million in collections. Our ability to sustain and increase current collection levels will be dependent on how we adapt to and manage the change. For the first time since fiscal year (FY) 1995, the VA recognized an increase in their third party collections this year, and it appears to be attributable to the implementation of reasonable charges billing (GAO, 2001). Although the VA has been able to reverse the trend in third party collections, they report several other ongoing problems such as voluntary disclosure of insurance by veterans, incomplete or insufficient documentation, software limitations for billing, and difficulties hiring and retaining qualified coders. Such problems are commonplace across the military healthcare system as well.

Staffing Challenges

Itemized billing is anticipated to require doubling the coding staff at most facilities. With facilities already struggling to recruit and retain qualified coders, the question arises whether MTF's will we be able to meet the necessary coding and administrative support needs. Hiring and retention of certified coders remains a significant challenge at Walter Reed. Even with the downturn in the economy, Washington D.C. remains one of the tightest job markets in the country. As of the end of January 2002, the unemployment rate in Washington D.C. was just 3.9%, compared to the national rate of 6.3% (Bureau of Labor Statistics, 2002). Recruiting is made even more difficult for MTF's because of the government service (GS) pay scales and slow hiring processes. Walter Reed has struggled to retain coders because government salaries are not competitive with what is available in the civilian sector. The coding department has seen a 50% turnover of its coding staff in the last year, and the coders that have remained are not credentialed.

Improving the Process

There are many different causes for coding errors. Providers must clearly document all components of service that they have provided to the patient. Problems occur when coding responsibility is passed on to clerks or technicians who are not familiar with coding procedures. If clerks cannot interpret the physician's notes, they are more likely to omit possible claims or incorrectly code procedures (Jordan, 1996). In order to circumvent some of these problems at WRAMC, we must extend training to all aspects of the coding and billing process (front desk clerks, physicians, coders, billing office, patients, and even third party payers).

In addition to understanding the process, the employees in our third party collections office must know the reimbursement specifics of our payers and the documentation requirements

within the Explanation of Medical Benefits (EOMB) for the various health insurance plans. There are many different limitations as to what insurance plans will reimburse for various episodes of care. It is also important to involve the insurers (third party payers) to ensure that they are aware of the changes we will be going through and to help them determine how the change in our system will impact their future charges. Instead of receiving one bill from the military, they could receive as many as ten different statements or subcontracted bills from a single patient visit. When the Military Health System (MHS) begins operating under itemization, the quality of our data and coding accuracy will be much more apparent to payers.

Another significant challenge surrounds the limitations of our information systems and those of our payers. Accurate, quality data collection is already difficult within the limitations of our current information system, Composite Health Care System (CHCS). Staff members who have contact with patients must also work to improve the accuracy of our data collection through proper booking of appointments and updating of information in the insurance database. It is extremely difficult for physicians to track and follow all of the various reimbursement rules and regulations, so they must have claims editing systems that will help contain some types of coding errors (McGahey, 2000). The Tricare Management Activity (TMA) is working on software solutions that will provide this type of assistance through a 'coding online editor'. The goal of this system is to highlight any incorrect data such as incorrect codes, codes that do not match the diagnosis, and double coding (Layman, 2001).

The transition to itemized billing will not be an easy one. The literature highlights the challenges we will face when trying to improve the accuracy of coding. The challenge is greater for the MHS, which must adapt its culture to the new system and develop incentives for

providers. It has been shown that we will face numerous challenges in data quality, training, staffing, and information system support.

Purpose

The purpose of this project is to evaluate and assess the various processes used for performing coding in the military healthcare system, and determine the best practices for ensuring coding accuracy in the WRAMC General Internal Medicine Clinic. Among these processes is an evaluation of coding accuracy between the ADS bubble sheet used four years ago and the current KG-ADM automated entry system. The second purpose for the project is to evaluate the effectiveness and accuracy of coding when performed either by providers, medical clerks, or certified coders.

Although providers are ultimately responsible for the accuracy of codes assigned and billed for each encounter, the assistance of medical clerks and coders to support providers has become a more common practice in the military healthcare system (MHS). In January 2002, the General Internal Medicine Clinic at WRAMC started an initiative to allow medical clerks to perform KG-ADM input for providers directly from the SF-600 documentation. This is considered an interim solution until certified coders are hired under contract for itemized billing. Evaluating the effectiveness of various coding practices will assist the command as they make staffing decisions and adapt processes to meet the requirements of itemized billing. The objective is to determine whether our current coding and documentation process is adequate or whether we need to implement additional faculty development programs.

Method and Procedures

This study involved the collection of three distinct sets of data. The three data sets were generated by collecting copies of the SF-600 (Standard Form 600), the "Chronological Record of

Medical Care" used by Army clinicians to document care provided during the patient visit. In the first data set, collected at the end of November 2001, copies of SF-600's were randomly collected from providers following patient encounters. As was standard practice at the time, providers were responsible for performing their own coding input into KG-ADM (Ambulatory Data Module). KG-ADM is the automated system used for recording the appropriate codes for diagnoses, procedures, and complexity of each visit.

The second and third data sets were collected in January and February 2002 after the clinic implemented a new coding initiative, relieving providers from the responsibility of coding input in KG-ADM. Instead, medical clerks would perform the coding input from SF-600's that they collected from provider offices throughout the day. The two medical clerks who were responsible for coding had different levels of experience in this area. The second data set represents the medical clerk who was new to coding and the third data set represents the medical clerk who had some previous experience in coding.

Sampling Design

The data sets for this study were all collected from random patient visits to the General Internal Medicine Clinic (GIMC) at WRAMC. The selected SF-600's were randomized among the provider staff, to ensure that the samples closely represented the cross-section of providers seeing patients in the clinic. Providers who served as subjects of the study were those medical staff permanently assigned to the GIMC. Each of the sample data sets was taken during one-week periods to ensure a representative sample of disorders and treatments.

Research Design

Two distinct but interrelated processes must be considered in assessing the coding process. The first is provider documentation in the medical record and the second is selection of

the correct diagnosis (ICD-9), procedure (CPT) and evaluation complexity (E&M) codes that are supported by that documentation. In order to conduct a quantitative evaluation of coding accuracy, the conditions for the study must be established. Coding accuracy was evaluated by comparing the input in the KG-ADM system to the correct 'gold standard' codes verified during the WRAMC coding department review of each encounter. Analysis could then be performed on the data to determine accuracy of diagnosis and complexity coding, frequency of code selections, and potential causes for coding discrepancies.

Validity and Reliability

The validity of the data collection was addressed by ensuring that the same procedures were used for each data set for determining the 'gold standard' for correct coding. This involved sending SF-600 records through the coding department staff for assignment of ICD-9 diagnosis codes, procedure codes, and evaluation and management complexity codes. The chief of the coding department then reviewed and made final code determinations when any disagreement existed about the appropriate code assignments. In order to eliminate any potential biases, the coding department was provided folders of SF-600's for coding with no information or detail about the purpose of the study or the person responsible for coding in the clinic (ie. provider or clerk).

As an instrument to enhance the reliability of coding assignments, the coding department uses a "General Multi-System Examination Worksheet" that was developed by the Iowa Foundation for Medical Care. This worksheet provides a breakdown of the key factors in coding complexity determination: patient history, general multi-system examination, and medical decision-making. As coders reviewed the record, they used the worksheet as a guideline for determining the extent of history review documented, the extent of examination performed, and

the amount or complexity of decision-making required. The documentation was reviewed against this worksheet to facilitate consistent evaluation and management (E&M) coding selections.

Data Collection

For the first set of data, providers were given folders in which to put their SF-600's after they completed KG-ADM coding input. For one week, these SF-600's were collected from provider offices. A random sample of 100 SF-600's was taken from the records of encounters collected during this week.

The second and third data sets involved taking a sample of 20 SF-600's, collected randomly from each clerk after they had already coded the visits into KG-ADM. The data sets were tracked exclusively of each other, but sent through the coding department for 'gold standard' code assignments at the same time.

Limitations

When comparing current coding accuracy to that of four years ago, it is important to recognize that no adjustments were made to results based on variations in staffing, training, workload, or mission requirements. These variables exist; however, they have been minimized through confirmation that no significant coding training programs have been conducted during the past four years. Additionally, the military healthcare system provider-to-patient staffing objectives have not changed during this time. Seasonal variations have been minimized by conducting the data collections during the same time of year as the 1998 data set (November / December timeframe).

An element of potential error in this study is the challenge of accurately and consistently interpreting provider handwriting in the SF-600 documentation. This challenge exists in almost

all forms of coding and is resolved by maintaining open access to providers to inquire about any questionable handwriting. The only other possible limitation of the study is a lack of continuity within the current contract coding staff. In order to adjust for this limitation, the final review by the chief of coding is a constant throughout the study.

Data Analysis

The independent variable in this study is the documentation provided by medical staff on the SF-600. The dependent variables are the specific diagnostic and procedural (E&M) codes selected within ADM. The Fisher's exact probability test was performed using cross tabulation to determine the significance of differences between the sample data sets. The coding sample results for each of the three data sets are based on describing trends and performing direct comparisons of sample set results. Quantification of MTF coding accuracy will help evaluate the level of risk inherent in our current coding practices.

Results

Data Set 1: Provider Coding in FY 1998 Compared to FY 2002

The first data set was designed to replicate the coding study conducted at WRAMC GIMC four years ago. A comparison was made between provider diagnosis coding accuracy using the ADS bubble sheet (1998) and diagnosis coding accuracy using KG-ADM (2002). Diagnosis coding correctness can be determined by dividing the total number of correctly captured ICD-9 diagnoses codes (3 digit) in ADS/KG-ADM by the total number of ICD-9 diagnoses recognized by the 'gold standard.' The results showed that ICD-9-CM diagnosis coding accuracy by providers had dropped from 66% in FY 1998 to 51% in FY 2002 (Figure 4). The statistical analysis of these results showed that the probability of this difference occurring based on chance alone was less than 1% ($p=.002$), (Table 6).

Another important determinant of diagnosis coding quality is the ability to record the primary and other contributing patient diagnoses. The number of diagnoses recorded per encounter was calculated by performing a count of the overall number of diagnoses recorded for each data set and dividing by the number of encounters sampled. The results showed that the average number of diagnoses recorded for each patient encounter dropped from 2.24 diagnoses per encounter 1998 to 1.81 in the current study (Figure 5).

Evaluation and management (E&M) complexity coding accuracy is determined by the number of encounters that are either correctly coded, over-coded, under-coded, or inappropriately coded. Over-coding reflects the situation where the documentation does not support the higher complexity code selected in ADS/KG-ADM. Under coding reflects the opposite situation. Inappropriate coding is defined as when an inappropriate category of code was used or coding was incomplete. The results below show that there has been a sizable increase in over-coding as compared to four years ago. This data is also displayed in Figure 6, showing how the percentage of over-coded records has more than doubled compared to FY 1998 data. The correctness of coding decreased from 21% to just 13%, with the chance of this occurring due to chance alone less than 14% (p=.136), (Table 6).

Table 1.

E&M Coding Accuracy	Correct	Over coded	Under coded	Inappropriate
Provider (ADS Bubble sheet 1998)	21%	37%	19%	22%
Provider (KG-ADM 2002)	13%	83%	4%	0%

The primary cause for E&M over-coding is best explained by assessing the frequency of code selections. Figure 7 shows the frequency of code selections for established patients with complexity codes in the ranges of 99212 (low) to 99214 (mod-high) complexities. When comparing provider coding to the 'gold standard,' it was evident that providers more frequently chose the higher E&M code (99214) for their patients. When the coding department evaluated these same records, they found that 68% of the time, records only had documentation to support a much lower complexity code, a 99212.

Data Sets 2 and 3: Comparing Provider Coding to that of supporting Medical Clerks

In January 2002, a new initiative was launched in the GIMC when clinic leadership decided to have medical clerks perform coding input for the providers. This decision was based on concerns that KG-ADM input took too much time away from direct patient care. ADM coding compliance rates by providers were regularly below 80%. It is clearly demonstrated that the medical clerk initiative had a positive impact on KG-ADM compliance rates. Figure 8 shows how KG-ADM compliance rates improved from a low of 71% in September 2001 to a high of 95% for January 2002 and 91% in February 2002.

An increase in coding compliance does not necessarily equate to improved quality of data. The results of an analysis of diagnostic coding accuracy are shown in Figure 9. In data set one, provider diagnosis coding accuracy was 51%. Results of the medical clerk samples in data sets two and three showed that the clerk with some coding experience had a diagnosis coding accuracy of 48% and the medical clerk with no previous coding experience was only 37% accurate. Determining the appropriate diagnostic code is difficult for providers, but as shown, is even more difficult for a medical clerk with no previous experience in medical record coding.

The number of diagnosis codes recorded for each patient encounter showed that the medical clerks missed almost one diagnosis per encounter compared to the gold standard. These results are shown on the next page in Table 2 and graphically displayed in Figure 10. Providers coded 1.81 diagnoses per encounter compared to just 1.12 and 1.21 for the medical clerks.

Table 2.

Avg. # ICD-9 D/x Recorded Per Encounter	Sample	Gold Std
Provider (KG-ADM 2002)	1.81	1.89
Medical Clerk (no Coding Exper., 2002)	1.12	2.06
Clerk w/ Coding Exper., 2002	1.21	2.00

The accuracy of E&M complexity coding was poor in all three data sets. Figure 11 shows that the clerk with coding experience over-coded less often and had a greater percentage of correctly coded records (37%). Although this appears that the clerk with coding experience performed more accurate coding, the reality was that this clerk simply coded all records under moderate complexity 99213 (Figure 12). As shown by the coding department 'gold standard' in data set three (Table 1), the correct disbursement of codes would have been approximately 63% as 99212 and 37% at 99213.

Discussion and Recommendations

Analysis of Coding Systems

The results of this study show that coding accuracy has dropped compared to four years ago. Despite the limitations of the ADS bubble sheet, the value of real-time recording of encounter data has shown to yield better and more accurate coding results than the current KG-ADM coding system. Although the KG-ADM automated system provides a much more extensive list of ICD-9 diagnosis codes, many providers have been frustrated by difficulties finding appropriate detail code(s) in the system. These difficulties can lead to selection of the first diagnosis code that appears rather than searching in greater detail to find the appropriate code to reflect the diagnosis. Discussions with providers have found that due to separate log-ins and additional time required for input, many choose to delay KG-ADM entry until the end of their clinical day, week, or later. These delays could be a root cause for accuracy and data quality problems identified with use of the KG-ADM system.

An essential advantage of the KG-ADM system is its ability to provide supervisors with better accountability and mechanisms for tracking coding completion and compliance. In an effort to combine the best attributes of the ADS bubble sheet and the KG-ADM system, an enhanced encounter sheet was developed. The enhanced encounter sheet (Appendix A) was designed as an easy-to-use check sheet for providers to record diagnoses, procedures and E&M codes from patient visits. Medical clerks who were struggling to interpret provider handwriting on SF-600 forms also welcomed the sheet. Starting with the most frequently utilized diagnosis and procedure codes in the clinic, the encounter sheet was developed. The top 20 diagnosis codes utilized by the internal medicine clinic are displayed in Table 4. This list was then expanded to include approximately 250 diagnosis codes, categorized by systems to increase

speed and ease of using the form. Additionally, the clinic chief provided a listing of the most commonly performed procedures in the clinic. It was believed that evaluation and management coding could also be improved by using the enhanced encounter form, which provided details about documentation requirements for each selected complexity code (Appendix A, side 2).

The enhanced encounter sheets were utilized by some providers, but not fully supported by GIMC leadership. The paper encounter form was viewed as "a step backward," when a functioning automated system for capturing coding information (KG-ADM) already exists. Clinic leadership was also concerned about additional administrative cost of copying, distributing, and tracking the encounter forms for approximately 350 patient visits per day. Despite the resistance to an encounter form at WRAMC, such forms are being used with success at other major facilities.

At Madigan Army Medical Center in Fort Lewis, Washington, the internal medicine clinic uses a 'super-bill' as a replacement for bubble sheets. Their chief, LTC Gary Wheeler, had been concerned with reports from internists about the time involved to enter data into KG-ADM. Provider efficiency has improved, as they are able to quickly record diagnoses and procedures from the visit onto the super-bill and allow clerks to perform the data entry. The encounter sheets make it possible for medical clerks to perform coding into the KG-ADM system without the challenge of interpreting provider handwriting. Additionally, since records are still logged into KG-ADM, clinic leadership receives the benefit of coding completion accountability that the automated system provides. The systems used for coding are just one component of implementing overall coding quality.

Questions Surrounding an Investment in Coders

We must consider whether professional coders are a sound business investment for our military healthcare system. The average cost to contract coders in the D.C. area ranges from $20-25 per hour, or approximately $50,000 per year. The additional cost of coding staff will have to be recovered through increases in the Third Party Collections (TPC) program. In 1999, Wilford Hall Air Force Medical Center hired coders and administrative support staff to provide professional coding in high-dollar outpatient reimbursement areas. Coders were able to help improve their KG-ADM compliance rates, but were not able to generate increased reimbursements. Reimbursements did not increase because provider documentation was poor or unspecific and because collection of Other Health Insurance (OHI) information from patients had not improved. Under the standard reimbursement rate system, they found that coders were not a cost-effective investment (Carden, 2000). Among the lessons learned from this study is that coders must have access to physicians and be willing to seek their input when assigning the appropriate level of coding.

Formulating the WRAMC Implementation Plan

Since the Wilford Hall study was performed under the limitations of the standard reimbursement rate system, coders were unable to capture the full extent of work being performed in the facility. Additionally, their coders were given a goal of improving ADS compliance rather than coding accuracy. The inaccuracy of current coding practice at WRAMC strongly supports the need to contract professional coders for outpatient care. Providers do not have the time, training, or incentives to learn about proper coding practices. Attempts to provide coding training and resources for providers have shown some gains in accuracy, but these gains have been short-lived due to military staff turnover and conflicting priorities. Medical clerks are

able to administratively support physicians, but since the clerks are not certified in coding, the ultimate responsibility remains with the provider.

The Tricare Management Activity has advised military treatment facilities to assess their staffing and support requirements in preparation for itemized billing (IB). The Army Medical Command (MEDCOM) anticipates that itemization will generate at least three times as many bills as our current standardized reimbursement schedules. With IB implementation, facilities will be required to assign HCPCS codes (supplies and equipment), modifiers (for physician services) and ancillary service charges that demand a higher level of coding experience. The increased coding requirements and need for even greater data accuracy strongly support using trained coders for outpatient care.

The WRAMC itemized billing workgroup has evaluated previous studies to try and determine the best method for implementing an outpatient coding staff. The two primary courses of action are to either decentralize the coders by putting a coder into each outpatient clinic, or centralize them in a coding department supporting the entire facility. Putting a coder into each outpatient clinic was not considered feasible, considering that there are almost 50 different ambulatory clinics at WRAMC. A pilot test conducted by patient administration staff last year in the Urology department showed mixed results for putting coders in clinics. Some doctors found that it was quicker to code on their own and others found the coder to be disruptive to the clinic. Workspace in most of the WRAMC outpatient clinics is very limited already, so space is a major consideration. By the end of the study, the coder was performing less than ½ of the workload and getting tasked to perform duties other than just coding (Arroyo, 2001).

Based on the Urology study data, the plan at WRAMC is to put contract coders in a centralized coding department. The advantages of a centralized coding area include the ability to

share expertise and maximize training opportunities as a group. This also allows for resource savings as coders work in shifts, share automation resources, and require less workspace than if they were located in each clinic. Workload variances will also be better balanced for maximum efficiency. During the review of medical clerk coding in this study, medical clerks in the WRAMC GIMC noted that workload fluctuations are one of their biggest challenges. Getting a regular, daily collection of SF-600's from providers is difficult. Some days are very slow because providers are holding onto their SF-600's, while other days they get large stacks of records to code. As a consolidated coding department, the variance in workload levels will be balanced out by having coders supporting all outpatient clinics in the facility.

Generating Incentives

Providers have no incentives to perform accurate coding. One of the essential components of a new coding contract will be the ability to generate incentives for coders to perform quality coding. This can be accomplished by conducting audits of coded records and by providing bonuses to coders who attain the highest standards for coding accuracy. Additionally, we must tie our data collection and coding processes to activities already performed by providers. If we can integrate coding into the everyday activities of providers (documentation), we will be able to improve data accuracy and reimbursements without interfering with patient care.

Documentation

One of the critical elements of coding that needs more attention is the quality of documentation on the SF-600 record of medical care. How do you begin to explain that providers in this study over-coded E&M complexity 83% of the time? The manual of Current Procedural Terminology provides detailed instructions about how to determine the appropriate

E&M complexity code. In the past, the amount of time spent with the patient was among the primary criteria for selecting an E&M code, however, time is no longer one of the top criteria. E&M codes should be based on the level of documentation of patient history, extent of medical exam performed, and complexity of medical decision-making required (American Medical Association, 2001).

This means that even though a provider spends extra time with a patient, under CPT guidelines they cannot code higher unless the documentation supports the necessary criteria for a higher code selection. Without adequate documentation, the visit would have to be coded at a lower complexity. When the coding department conducted its review of the 100 patient encounters, they found that the majority of visits (68%) supported a lower 99212 code rather than the 99213's and 99214's entered by physicians. Although this does not specifically threaten our system now while using standardized reimbursements, itemized billing will produce bills using the E&M code level of physician reimbursement. Our facility will be at greater risk if we do not ensure that the selected code matches the level of documentation in the record.

Ensuring Accurate Representation of Workload

In addition to identifying the primary diagnosis in the encounter, there are often several co-existing conditions that should also be documented as contributing diagnoses to the patient's condition. The average number of diagnosis codes recorded per encounter reflects one aspect of the case mix complexity of patient visits. When providers performed their own KG-ADM input, they recorded 1.81 diagnoses per encounter, similar to the 1.89 diagnoses recorded by the coding department for those same records. However, when the medical clerks performed KG-ADM input, they recorded an average of 1.12 and 1.21 diagnoses per encounter, compared to the 2.06 and 2.00 average diagnoses recorded by the coding department for those same records (Table 1).

Medical clerks were only selecting one diagnosis code per encounter for over 85% of patient visits. Although providers were documenting other diagnoses, the clerks were either unable to identify the other diagnoses, were untrained in proper coding, or had insufficient time to adequately code each of the records. The primary goal for the clerks was to improve the KG-ADM compliance (completion of encounter coding), but not to ensure detailed and accurate representation of all possible codes for the encounter. Additionally, the clerks were coding almost all encounters as a 99213, even though it has been shown that there is a lot more variability in E&M coding. Although they were doing a phenomenal job of ensuring completion of record coding (compliance reached 95% in January), the data being entered into KG-ADM by both clerks was not providing an accurate representation of the actual workload in the clinic. This should be of particular concern as we plan ahead toward a new coding contract for the facility in support of itemized billing.

A Process of Continuous Improvement

This study generated some useful information about medical clerk coding practices and the opportunity for some constructive process improvements. The medical clerks recognized that they needed to review records more closely to identify more than just the primary diagnosis. Secondly, they were advised that the practice of automatically coding E&M complexity as 99213 led to many of the over-coding observations. The recommendation at this point was "when in doubt, code records as a 99212." This was based on 'gold standard' results showing that provider documentation supported the lower 99212 code over 70% of the time. This practice will serve as an interim solution until provider documentation improves and professional coders are hired to support accurate coding of outpatient records.

The Army's Patient Administration Systems and Biostatistics Activity (PASBA) at Fort Sam Houston, Texas is developing long-term solutions to coding problems through a process of training and monitoring. The first initiative is an online coding training course for providers. The course consists of 17 modules that can be completed at separate sittings and take a total of approximately eight hours to complete (Starcher, 2002). Provider coding education should help enhance documentation and cooperation with support staff responsible for coding input. The PASBA is also establishing an external coding audit and validation process that will periodically assess coding accuracy and data quality in our facilities. The audit and validation process should be able to increase coding compliance and accuracy by monitoring progress and providing regular feedback.

The Future of DOD Coding

Although still several years away from full implementation, the Composite Health Care System (CHCS) version II is expected to provide answers to many of our current coding challenges. Using a commercial product called MEDCIN (Medicomp, 2002), CHCS II will be able to perform coding of ICD-9 and CPT codes automatically from the diagnoses and procedures entered in the computer-based patient record notes. The system then generates a suggested E&M code based on the actual documentation.

The MEDCIN product uses "intelligent filtering" of medical information to identify the correct ICD-9 diagnosis code (Medicomp, 2002). Intelligent filtering is based on the ability to decipher the phrasing of provider notes and use of a table of over 600,000 synonyms to make accurate code assignments. Coding is performed without additional time or training requirements for providers. The coding capabilities within CHCS II will replace the KG-ADM (Ambulatory Data Module) and feed information directly to the TPOCS (Third Party Outpatient

Collection System) for billing. As new products are introduced, new challenges will develop as we work to make them part of our unique web of military healthcare support systems. Improving data quality is a continuous process.

Conclusion

The results of this study clearly show that current coding practices contain substantial amounts of error and the potential for inaccurate billing. Generating bills and collecting from insurers is not a core competency of our military healthcare system (MHS). The primary mission of the MHS has been to maintain wartime medical readiness and provide quality care to a wide range beneficiaries whose healthcare is fully covered at locations throughout the world. Although we cannot overlook the opportunity to collect additional revenues, we must also keep the appropriate perspective when assessing our coding accuracy.

Healthcare providers in the military have many additional requirements such as weapon qualifications, physical fitness testing, and annual field exercise training for our Professional Filler System (PROFIS) providers. They must be prepared to deploy at sudden notice to support any variety of combat, coalition force, or peacekeeping exercises. Their training and readiness must include elements of combat casualty care, battlefield evacuation echelons of care, and medical defense for chemical and biological attacks, to name a few. Asking our providers to also be experts in diagnosis and procedure coding is not an effective use of their time, training, or skills. Asking medical clerks to perform coding responsibilities is also an inappropriate use of their skills and subjects the facility to greater risk through errors.

Neither the providers nor the medical clerks have the training or incentives to ensure that coding is performed in an accurate or timely manner. It is only by employing professional coders that we can be reasonably comfortable that coding will be performed with the highest

degree of accuracy possible. Professional coders are more committed to coding accuracy because their livelihoods and certifications depend on it. Daily audits of 3-5% of encounters are part of most coding contracts and provide an added incentive for quality coding. It is expected that any contract to provide certified coders with a minimum of turnover will be quite expensive. The challenge will be generating sufficient reimbursements to cover the cost of the new coding staff. To make this happen, we must remain attentive to the encounter documentation and information systems support needs of the coders. We must also maximize third party insurance disclosure at the time of patient registration into our system. With these processes in place, itemized billing will have the potential to generate much greater and more accurate collections for our facility.

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Appendix A

Encounter Coding Form

Family Health Clinic (1B)
ICD-9-CM Diagnostic Coding

ICD-9-CM Diagnostic Coding: Select first the code for the diagnosis, condition, problem, or other reason for the encounter/visit (Enter 1). List additional codes that describe any coexisting conditions (Enter 2,3, and/or 4).

Infectious and Parasitic Diseases	
042	Human immunodeficiency virus
487.1	Influenza w/ URI symptoms
795.5	Positive PPD
034.0	Strep Throat
099.9	Venereal disease, unspecified
077.99	Viral conjunctivitis
057.9	Viral exanthems, other, NOS
070.9	Viral Hepatitis, NOS
079.99	Viral infection, unspecified
Neoplasms - Malignant	
174.9	Breast, female, unspecified
153.9	Colon, unspecified
159.0	Gastrointestinal tract, unspecified
162.9	Lung, unspecified
185	Prostate
165.9	Respiratory tract, NOS
173.9	Skin, unspecified
189.9	Urinary, unspecified
Neoplasms - Benign	
211.3	Colon
214.9	Lipoma, any site
216.9	Skin, unspecified
Endocrine, Nutritional & Metabolic Disorders	
276.5	Dehydration
250.90	Diabetes mellitus, II, complications
250.00	Diabetes mellitus, II, uncomplicated
271.9	Glucose intolerance
274.9	Gout, unspecified
272.4	Hyperlipidemia
242.9	Hyperthyroidism, NOS
250.8	Hypoglycemia, diabetic, unspecified
244.9	Hypothyroidism, unspecified
278.00	Obesity, NOS
241.0	Thyroid nodule
Laboratory	
275.42	Hypercalcemia
276.8	Hypokalemia
276.1	Hyponatremia
790.6	Other abnormal blood chemistry
Blood Diseases	
280.9	Anemia, iron deficiency, unspecified
285.9	Anemia, other, unspecified
281.0	Anemia, pernicious
289.9	Blood disease, unspecified
287.9	Hemorrhagic conditions, unspecified
Mental Disorders	
331.0	Alzheimers
307.1	Anorexia nervosa
300.00	Anxiety state, unspecified
311	Depressive disorder, NOS
304.90	Drug dependence, unspecified
307.40	Insomnia, unspecified
300.01	Panic disorder
302.70	Sexual dysfunction, unspecified
Nervous System and Sense Organ Disorders	
354.0	Carpal tunnel
438.9	CVA, late effect, unspecified
345.90	Epilepsy, unspecified
784.0	Headache, unspecified
346.90	Migrane, unspecified
340	Multiple sclerosis
357.9	Neuropathy, unspecified
332.0	Parkinsonism, primary
333.99	Restless legs
780.2	Syncope
307.81	Tension headache
333.1	Tremor, essential/familial
781.0	Tremor/spasms, NOS
350.1	Trigeminal neuralgia
Eye Diseases	
373.00	Blepharitis, unspecified
366.9	Cataract, unspecified
373.2	Chalazion
372.30	Conjunctivitis, unspecified
918.1	Corneal abrasion
379.90	Eye disorder, unspecified
930.9	Eye foreign body, external, unspec
365.9	Glaucoma, unspecified
373.11	Hordeolum (stye)
368.10	Visual disturbance, unspecified
Ear Diseases	
389.9	Hearing loss, unspecified
380.10	Otitis externa, unspecified
382.00	Otitis media, acute
386.2	Vertigo, central
386.10	Vertigo, peripheral, unspecified
380.4	Wax in ear
Circulatory System	
794.31	Abnormal electrocardiogram
428.1	Acute pulmonary edema
413.9	Angina pectoris, NOS
411.1	Angina, unstable
441.9	Aortic aneurysm, unspecified
427.31	Atrial fibrillation
434.91	Cerebral artery occlusion, unspecified
786.50	Chest pain, unspecified
414.9	Chronic ischemic heart dis, unspec
459.9	Circulatory disorder, unspecified
426.9	Conduction disorder, unspecified
428.0	Congestive heart failure
424.1	Disease of heart valve, aortic, NOS
394.9	Disease of heart valve, mitrial, unspe
796.2	Elevated BP w/o hypertension
401.1	Hypertension, benign
401.9	Hypertension, unspecified
785.2	Murmur of heart, undiagnosed
412	Myocardial infarction, old
458.0	Orthostatic hypotension
785.1	Palpitations
427.0	Paroxysmal supraventricular tach
420.91	Pericarditis, acute, nonspecific
443.9	Peripheral vascular disease, unspec
427.60	Premature beats, unspecified
416.9	Pulmonary heart dis, chronic, unspec
398.90	Rheumatic heart disease, unspecified
427.81	Sick sinus syndrome
451.9	Thrombophlebitis, unspecified
435.9	Transient ischemic attack, unspec
454.9	Varicose veins w/o ulcer/inflammation
459.81	Venous insufficiency, unspecified
Respiratory System	
465.9	Acute URI, NOS
493.90	Asthma, unspecified
466.0	Bronchitis, acute
491.9	Bronchitis, chronic, unspecified
496	COPD, NOS
786.09	Dyspnea
464.0	Laryngitis, acute
462	Pharyngitis, acute
511.9	Pleural effusion, NOS
486	Pneumonia, unspecified
477.9	Rhinitis, allergic, cause unspecified
472.0	Rhinitis, chronic
461.9	Sinusitis, acute, NOS
473.9	Sinusitis, chronic, NOS
780.53	Sleep apnea w/ hypersomnia
465.9	Upper respirat. infection, acute, NOS
GI / Digestive System	
789.00	Abdominal pain, unspecified
565.0	Anal fissure, nontraumatic
569.3	Bleeding, rectal
574.20	Cholelithiasis, NOS
571.9	Chronic liver disease, unspecified
571.5	Cirrhosis, NOS
564.0	Constipation
525.9	Dental, unspecified
787.91	Diarrhea, NOS
562.11	Diverticulitis of colon, NOS
562.10	Diverticulosis of colon
536.8	Dyspepsia
787.2	Dysphagia
530.9	Esophageal disease, unspecified
575.9	Gallbladder disease, unspecified
787.3	Gas/bloating
009.1	Gastroenteritis, infectious
530.81	Gastroesophageal reflux
455.6	Hemorrhoids, NOS
553.3	Hernia, hiatal
550.90	Hernia, inguinal, NOS
553.9	Hernias, other, NOS
564.1	Irritable bowel syndrome
787.01	Nausea w/ vomiting
787	Nausea, alone
577.0	Pancreatitis, acute
533.90	Peptic ulcer disease, unspecified
524.60	Temporomandibular joint disord, unsp
787.03	Vomiting, alone
Urinary System Diseases	
595.0	Cystitis, acute
582.9	Glomerulonephritis, chronic, unspec
599.7	Hematuria
791.0	Proteinuria, nonpostural, nonobstetric
590.10	Pyelonephritis, acute, no necrosis
593.9	Renal disease, NOS
584.9	Renal failure, acute, unspecified
585	Renal failure, chronic
592.9	Urinary calculus, unspecified
788.41	Urinary frequency
Male Genital Organ Diseases	
603.9	Hydrocele, unspecified
607.84	Impotence, organic
604.90	Orchitis/epididymitis, unspecified
600	Prostatic hypertrophy, benign
601.9	Prostatitis, NOS
099.40	Urethritis, nongonococcal, unspec
456.4	Vancocele
Breast Diseases	
611.9	Breast disease, unspecified
611.72	Breast lump
610.1	Fibrocystic disease
Female Genital Organ Diseases	
625.0	Dyspareunia
112.1	Moniliasis, vulva/vagina
625.6	Stress incontinence, female
616.10	Vaginitis/vulvitis, unspecified
Disorders of Menstruation	
626.2	Excessive/frequent menstruation
627.9	Menopausal disorders, unspecified
625.3	Painful menstruation
V07.4	Postmenopausal hormone replacem
Fertility Problems	
606.9	Infertility, male, unspecified
Skin, Subcutaneous Tissue	
706.1	Acne, other
702.0	Actinic keratosis
682.9	Cellulitis/abscess, unspecified
707.9	Chronic skin ulcer, unspecified
692.9	Contact dermatitis, NOS
700	Corn/callus
691.8	Eczema, stopic dermatitis
704.9	Hair disease, unspecified
054.9	Herpes simplex, any site
053.9	Herpes zoster / shingles, NOS
704.1	Hirsutism
703.0	Ingrown nail
110.1	Onychomycosis
709.9	Other skin disease, unspecified
696.1	Psoriasis
782.1	Rash, nonvesicular, unspecified
695.3	Rosacea
706.2	Sebaceous cyst
690.10	Seborrheic dermatitis, NOS
702.19	Seborrheic keratosis, NOS
692.71	Sunburn
111.0	Tinea versicolor
708.9	Urticaria, unspecified
078.10	Warts, all sites
Musculoskeletal & Connective Tissue	
710.9	Connective tissue disease, unspec
727.43	Ganglion, unspecified
724.2	Low back pain
729.1	Myalgia/myositis, unspecified
715.90	Osteoarthrosis, unspecified
733.00	Osteoporosis, unspecified
714.0	Rheumatoid arthritis (adult)
727.00	Synovitis/tenosynovitis, unspecified
Signs and Symptoms	
781.2	Abnormality of gait
783.0	Anorexia
719.40	Arthralgia, unspecified
786.2	Cough
780.4	Dizziness/vertigo, NOS
784.7	Epistaxis
780.7	Fatigue/malaise
785.6	Lymph nodes, enlarged
788.42	Polyuria
783.2	Weight loss, abnormal
Dislocations, Sprains, & Strains	
845.00	Sprain/strain: ankle, unspecified
844.9	Sprain/strain: knee/leg, unspecified
840.9	Sprain/strain: shoulder/arm, unspec
Other Trauma, Adverse Effects	
919.0	Abrasion, unspecified
924.9	Bruise contusion, unspecified
949.0	Burn, degree unspecified
919.4	Insect bite
908.9	Late effects of injury, unspecified
995.2	Medication, adverse effects, unspec
959.9	Other trauma, unspecified
999.9	Surgery/medical care complic., unsp
General / Exams & Counseling	
305.00	Alcohol abuse
305.1	Tobacco abuse
V70.5	Military physical exam
V70.52	Periodic preventative examination
V68.1	Medication refills
V22.2	Pregnancy, normal
V25.01	General counseling on prescription
V65.49	Other specified counseling
V82.9	Screening for unspecified condition
OTHER ICD-9 CODES	

Procedure Coding

CPT Coding: Select the name of the procedure or service that most accurately identifies the service performed. Any service or procedure should be adequately documented in the medical record.

☐	20605 Drain/Inject Intermediate Joint
☐	20610 Drain/Inject Major Joint
☐	32000 Drainage of Chest
☐	93010 Electrocardiogram Report
☐	94070 Evaluation of Wheezing
☐	82962 Glucose Blood Test
☐	90788 Injection of Antibiotic
☐	20550 Injection of Tendon/Ligaments
☐	90780 IV Infusion for up to One Hour
☐	90781 IV Infusion for Additional Hours (Up to 8)
☐	62270 Lumbar Puncture
☐	94760 Measure Oxygen Blood Level
☐	94640 Nebulizer Treatment
☐	99071 Patient Education Materials
☐	99090 PFT Analysis
☐	94760 Pulse Oximetry
☐	10160 Puncture Abscess or Cyst
☐	49080 Puncture, Peritoneal Cavity
☐	90782 SC or IM Injection
Other CPT Codes	
☐	
☐	
☐	

DISPOSITION

- ☐ Released w/o limitations
- ☐ Released w/ work/duty limitations
- ☐ Sick at home/quarters
- ☐ Immediate referral
- ☐ Admitted
- ☐ Expired

Patient Name: _____

Appointment Date: _____

Appointment Time: _____

Provider: _____

* Personal Data - This form is subject to the Privacy Act of 1974.
* Destroy form once it has been used for its intended purpose.

Complexity Coding (E&M)

Evaluation and Management Coding: Used for determining physician reimbursement when billing. A critical aspect of E&M coding is to ensure documentation in patient record supports selected code.

New Patient (patient has not received services from this clinic in the past 3 years)		
☐	**99201**	Requires all three components for a new patient: A problem focused History, problem focused Exam, and straightforward Medical decision making
☐	**99202**	Requires these 3 components: An expanded problem focused History, expanded problem focused Exam, and straightforward Medical decision making
☐	**99203**	Requires these 3 components: A detailed History, detailed Medical Exam, and Medical decision making of low complexity
☐	**99204**	Requires these 3 components: A comprehensive History, comprehensive Exam, and Medical decision making of moderate complexity
☐	**99205**	Requires these 3 components: A comprehensive History, comprehensive Exam, and Medical decision making of high complexity
Established Patient (patient has received services from this clinic within the past 3 years - may be new to the provider, but still an established patient)		
☐	**99211**	Office or other outpatient visit that may not require the presence of a physician. Usually, presenting problems are minimal.
☐	**99212**	Requires at least 2 of these 3 components: A problem focused History, problem focused Exam, straightforward Medical decision making
☐	**99213**	Requires at least 2 of these 3 components: An expanded problem focused History, expanded problem focused Exam, low complexity Medical decision making
☐	**99214**	Requires at least 2 of these 3 components: Detailed History (documentation of at least 3 chronic or inactive conditions), Detailed Exam (Exam of at least 5 organ systems/body areas), moderate complexity of Medical decision making
☐	**99215**	Requires at least 2 of these 3 components: A comprehensive History, comprehensive Exam, and Medical decision making of high complexity
Telephone Consults		
☐	**99371**	Telephone consult to patient; simple or brief
☐	**99372**	Telephone consult to patient; low/moderate complexity
☐	**99373**	Telephone consult to patient; complex/lengthy

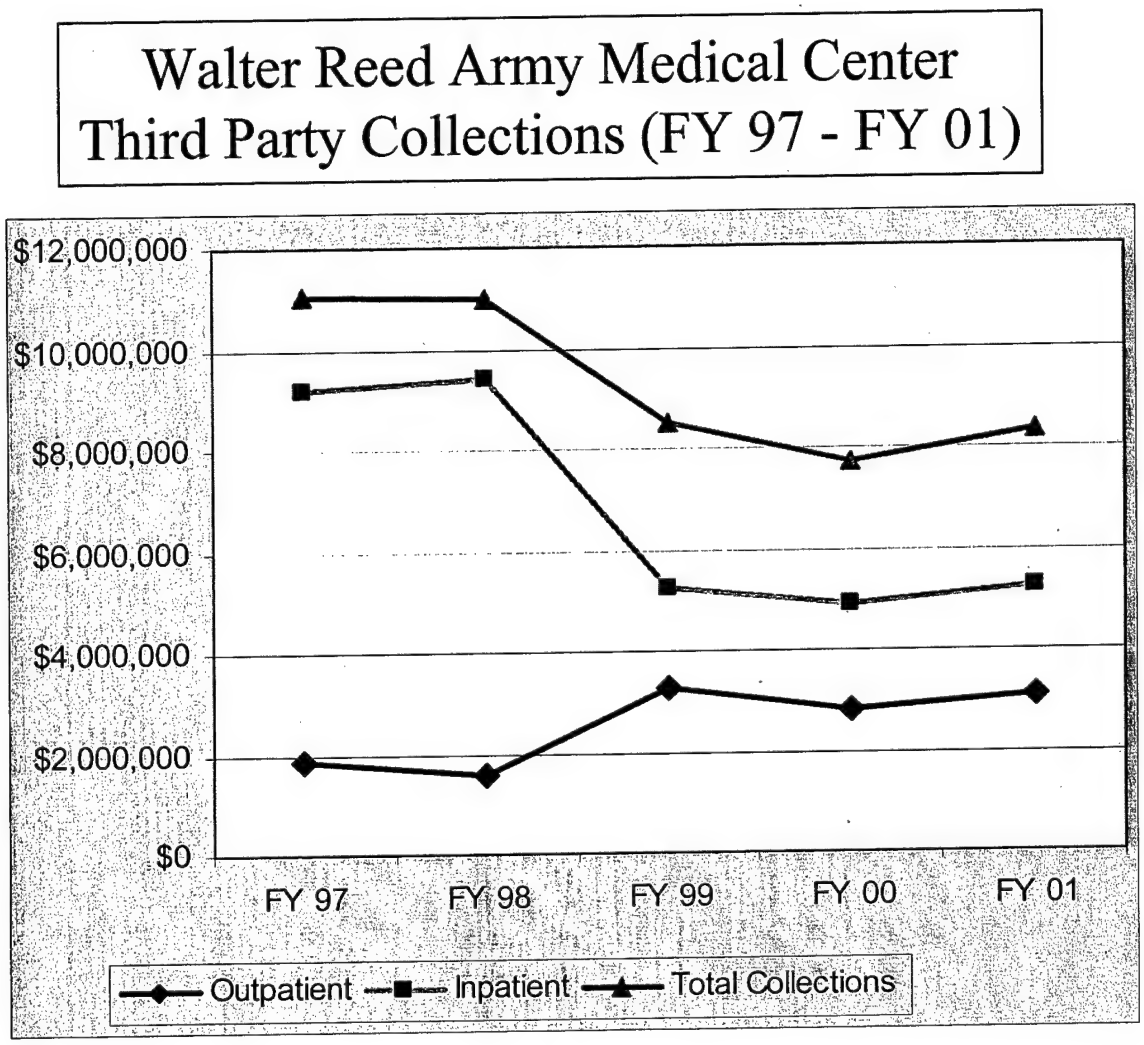
Additional Provider: _____

Assisting Provider
Supervising Provider
Nurse
Para-Professional

Additional Provider: _____

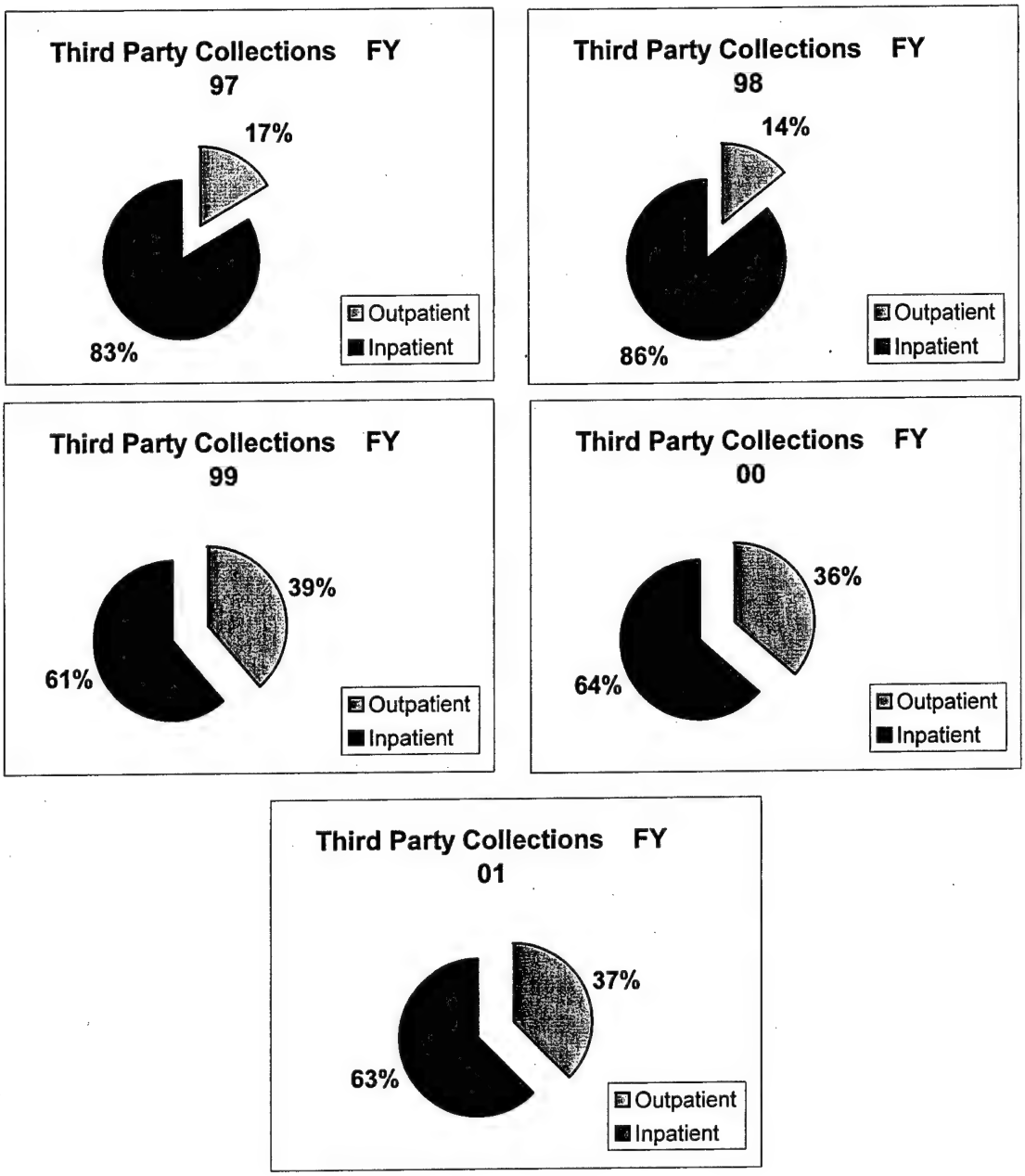
Assisting Provider
Supervising Provider
Nurse
Para-Professional

Figure 1. WRAMC Third Party Collections (FY 97 - FY 01)



	FY 97	FY 98	FY 99	FY 00	FY 01
Outpatient	$1,858,994	$1,574,259	$3,281,810	$2,795,220	$3,120,114
Inpatient	$9,208,096	$9,431,347	$5,233,297	$4,895,458	$5,223,154
Total	$11,067,090	$11,005,606	$8,515,107	$7,690,678	$8,343,268

Figure 2. WRAMC Third Party Collections: Inpatient vs. Outpatient (FY 97 - FY 01)

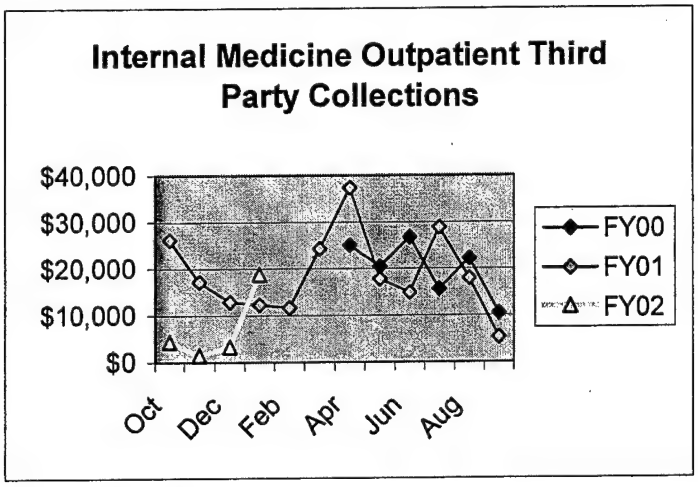


	FY 97	FY 98	FY 99	FY 00	FY 01
Outpatient	$1,858,994	$1,574,259	$3,281,810	$2,795,220	$3,120,114
Inpatient	$9,208,096	$9,431,347	$5,233,297	$4,895,458	$5,223,154
Total	$11,067,090	$11,005,606	$8,515,107	$7,690,678	$8,343,268

Figure 3.

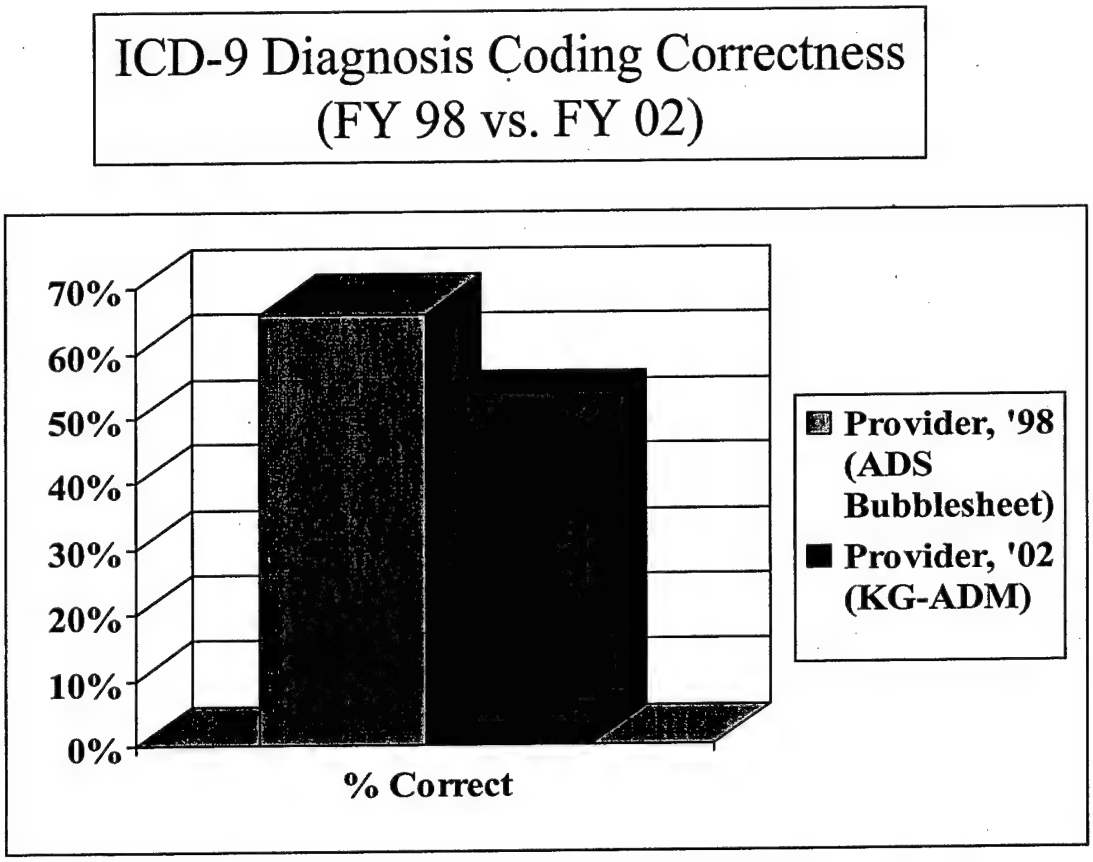
Third Party Collections, Outpatient, WRAMC Internal Medicine Clinic (BAAA)
(FY 01 and FY 02)

Month	FY 2000	FY 2001	FY 2002
Oct		$26,179	$4,343
Nov		$17,073	$1,450
Dec		$12,830	$3,256
Jan		$12,173	$18,756
Feb		$11,537	
Mar		$24,199	
Apr	$25,009	$37,303	
May	$20,427	$17,683	
Jun	$26,702	$14,822	
Jul	$15,589	$28,770	
Aug	$22,125	$17,832	
Sep	$10,359	$5,288	



884 Number of TPOCS claims in FY 2001
$255 = Average collection per claim, FY 2001

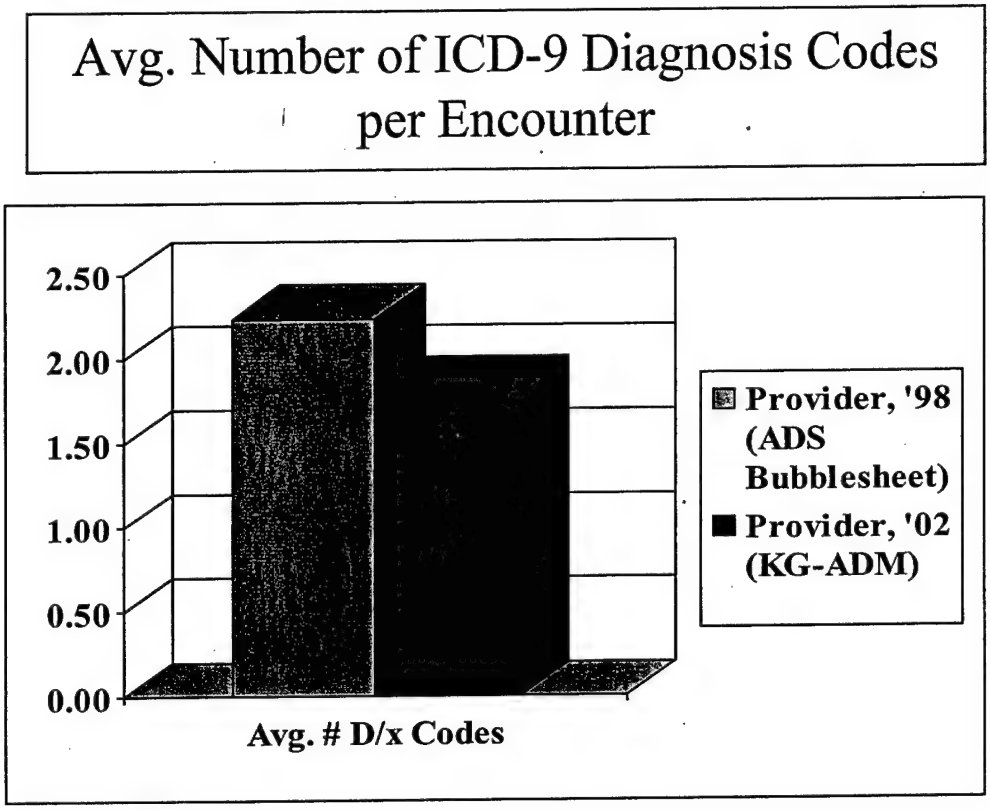
Figure 4. ICD-9 Diagnosis Coding Correctness (FY98 vs. FY02)



ICD-9 Coding Correctness

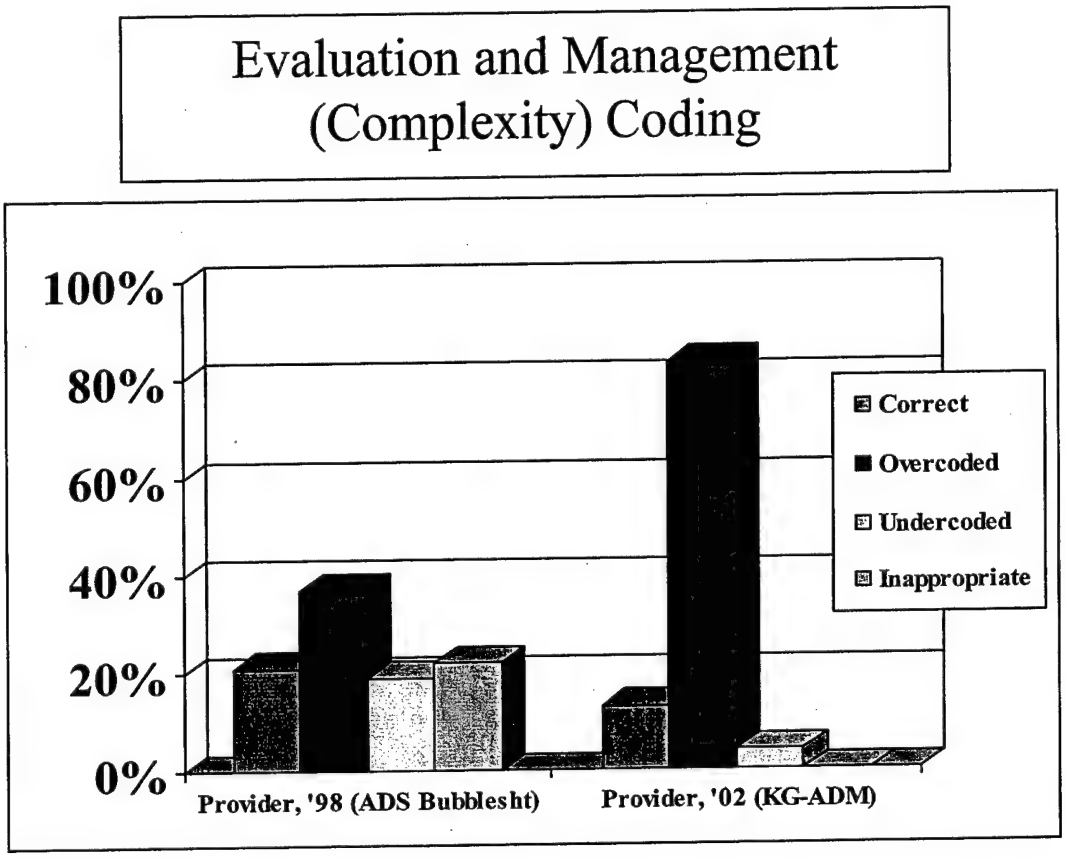
Provider (ADS Bubblesheet 1998)	66%
Provider (KG-ADM 2002)	51%

Figure 5. Average Number of ICD-9-CM Diagnoses Recorded per Encounter (FY98 ADS Bubblesheet vs. FY02 KG-ADM)



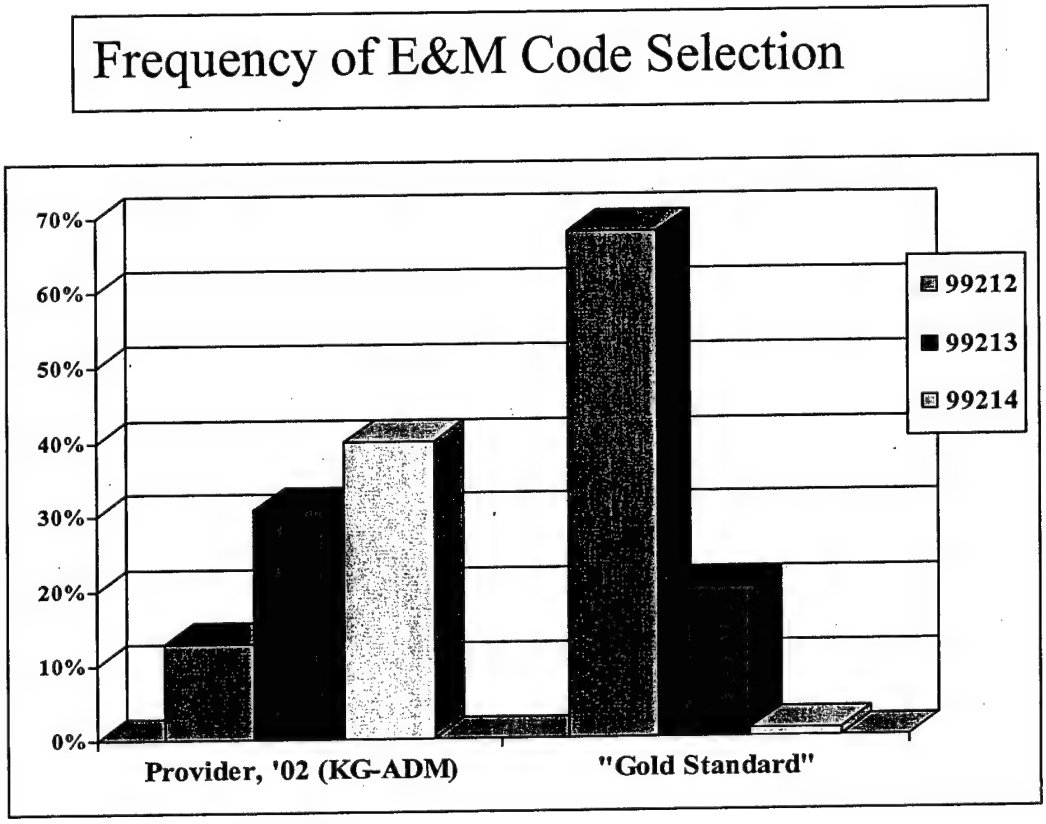
Avg. # ICD-9 D/x Recorded Per Encounter	
Provider (ADS Bubblesheet 1998)	2.24
Provider (KG-ADM 2002)	1.81

Figure 6. Evaluation and Management Coding Accuracy (FY98 vs. FY02)



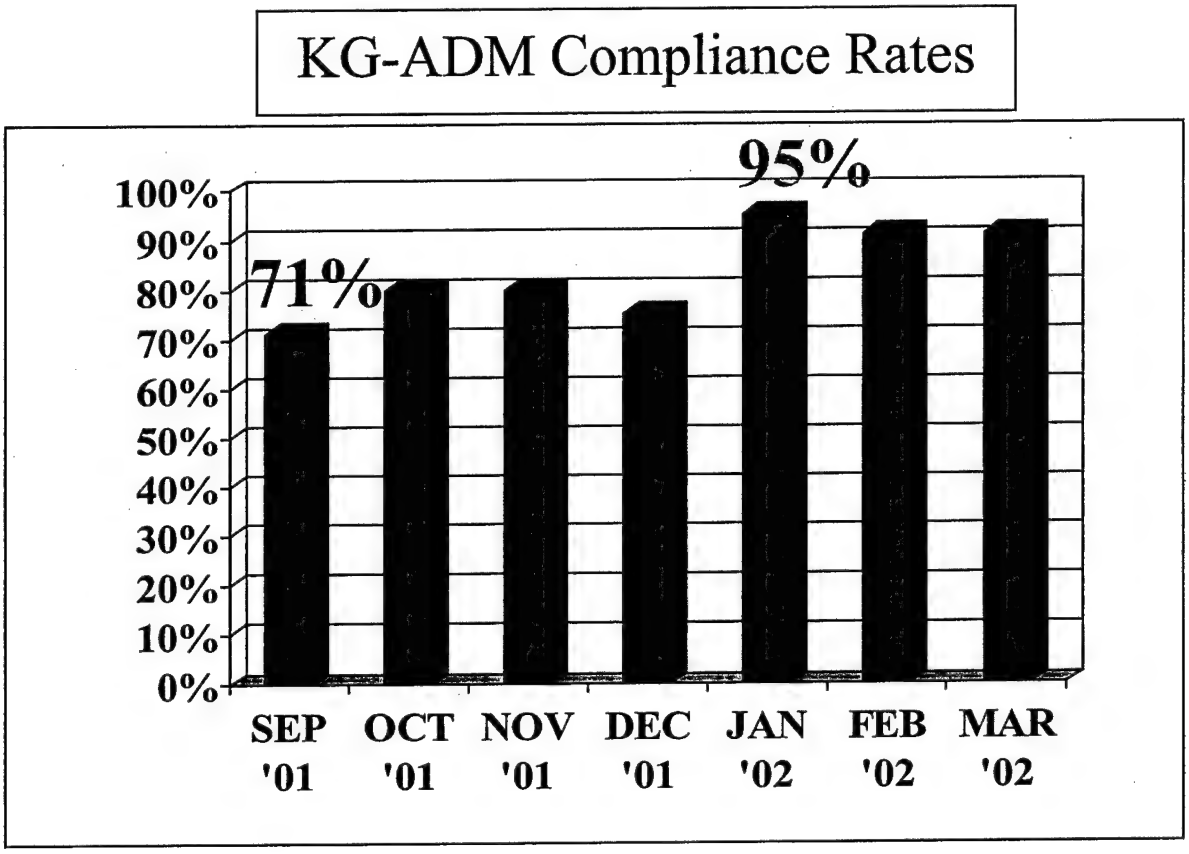
E&M Coding Accuracy	Correct	Overcoded	Undercoded	Inappropriate
Provider (ADS Bubblesheet 1998)	21%	37%	19%	22%
Provider (KG-ADM 2002)	13%	83%	4%	0%

Figure 7. Frequency of E&M Complexity Code Selection (99212, 99213, 99214) (Providers Compared Against "Gold Standard")



E&M Coding Frequencies	99212	99213	99214
Provider (KG-ADM 2002)	13%	31%	40%
"Gold Standard" Coding Dept	68%	20%	1%

Figure 8. KG-ADM Coding Completion Rates per Encounter
(WRAMC General Internal Medicine Clinic)



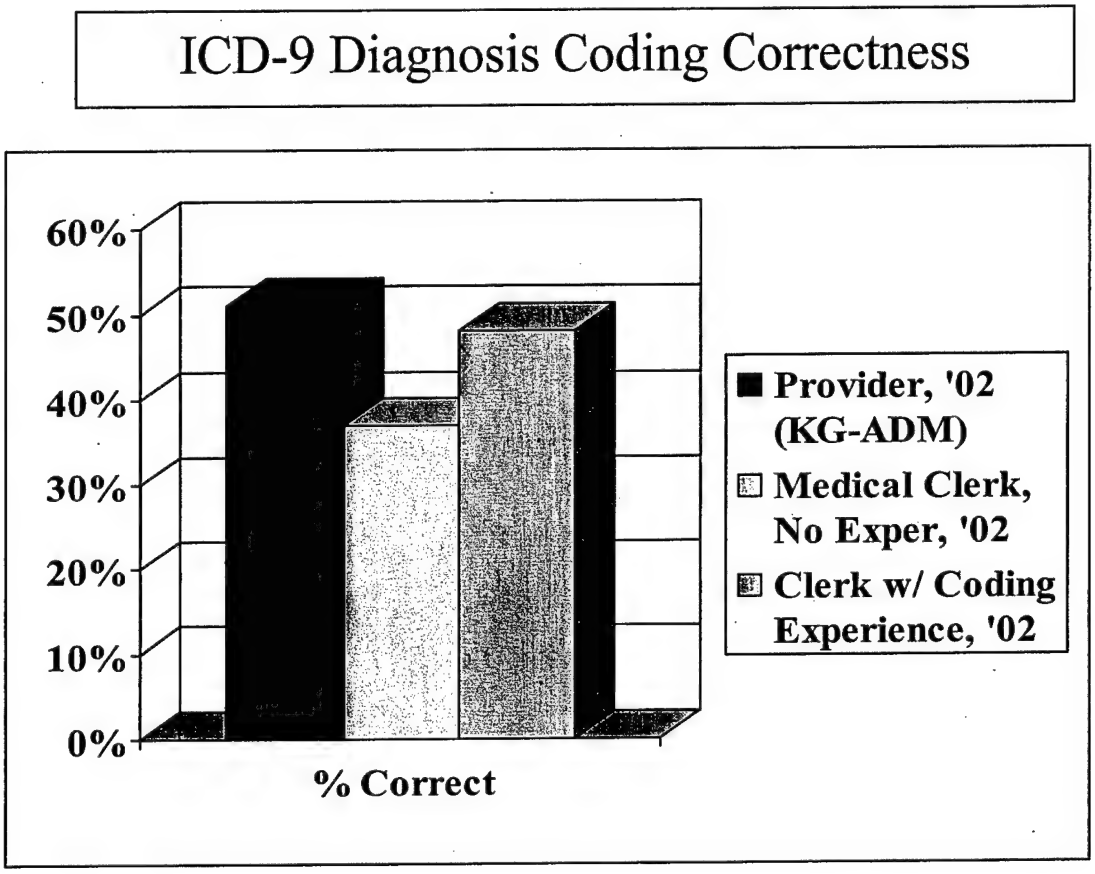
Internal Medicine Clinic KG-ADM Compliance Report
(01 Sep 01 - 31 Mar 02)

From: 01 Sep 2001 To: 31 Mar 2002

Division: WALTER REED AMC, DMIS: 0037, MEPR: BAAA
Clinic(s): INT MED PCC WR (KEPT, WALK-IN, S-CALL, TEL-CON)

	Sep-01	Oct-01	Nov-01	Dec-01	Jan-02	Feb-02	Mar-02
# Appt's in Patient Appointing System:	5814	7572	7223	5645	7584	6621	6724
# of Encounters Coded in KG-ADM:	4137	6085	5760	4254	7174	6035	6110
KG-ADM Completion Percentage:	71%	80%	80%	75%	95%	91%	91%

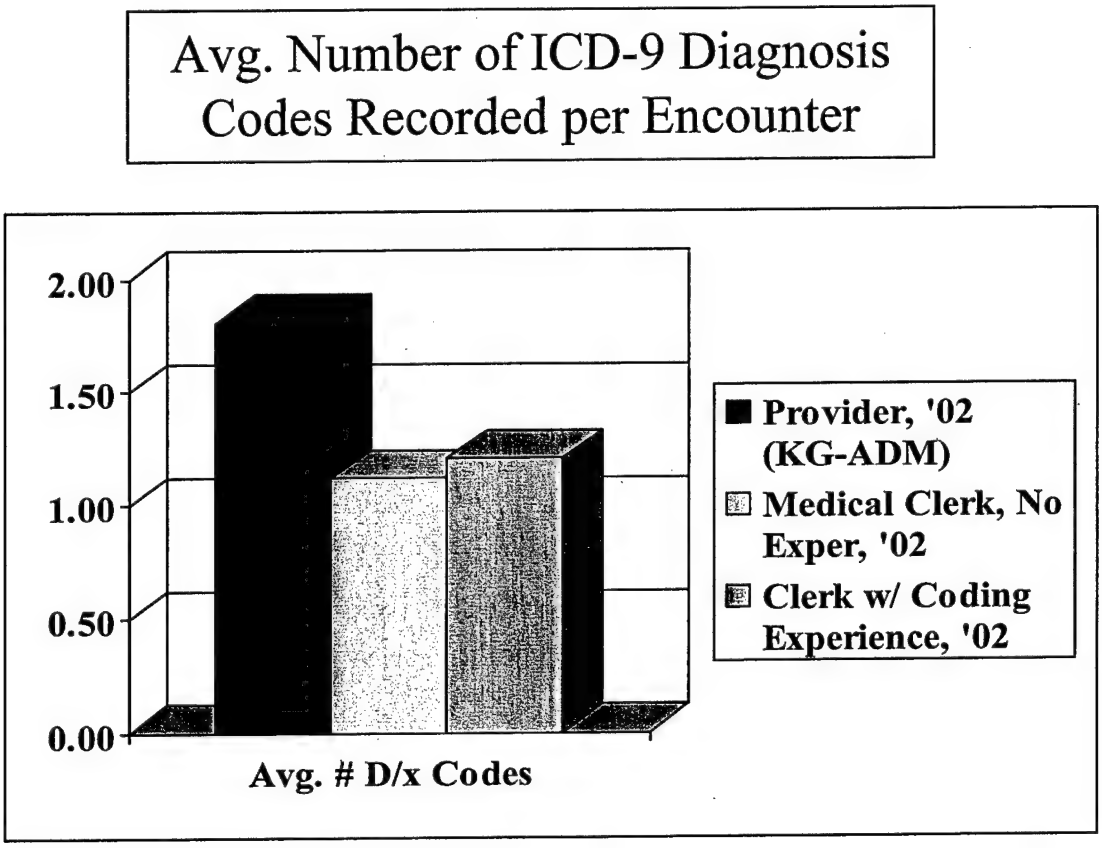
Figure 9. ICD-9-CM Diagnosis Coding Correctness (Providers Compared to Clerks)



Standard: Correctness of diagnoses (3-digit) captured into KG-ADM system

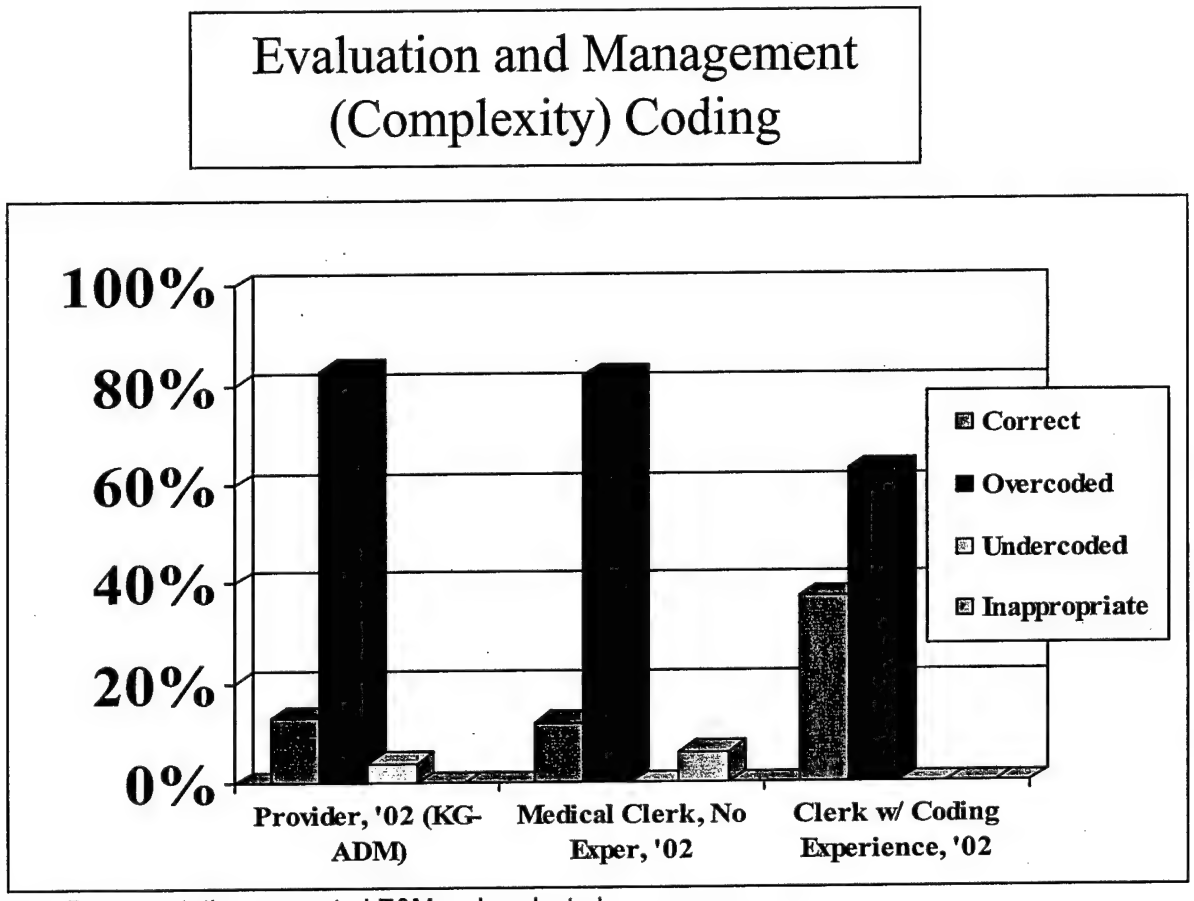
ICD-9 Coding Correctness	
Provider (KG-ADM 2002)	51%
Medical Clerk (no Exper., 2002)	37%
Clerk w/ Coding Exper., 2002	48%

Figure 10. Average Number of ICD-9-CM Diagnosis Codes Recorded per Patient Encounter (Providers Compared to Clerks)



Avg. # ICD-9 D/x Recorded Per Encounter	
Provider (KG-ADM 2002)	1.81
Medical Clerk (no Exper., 2002)	1.12
Clerk w/ Coding Exper., 2002	1.21

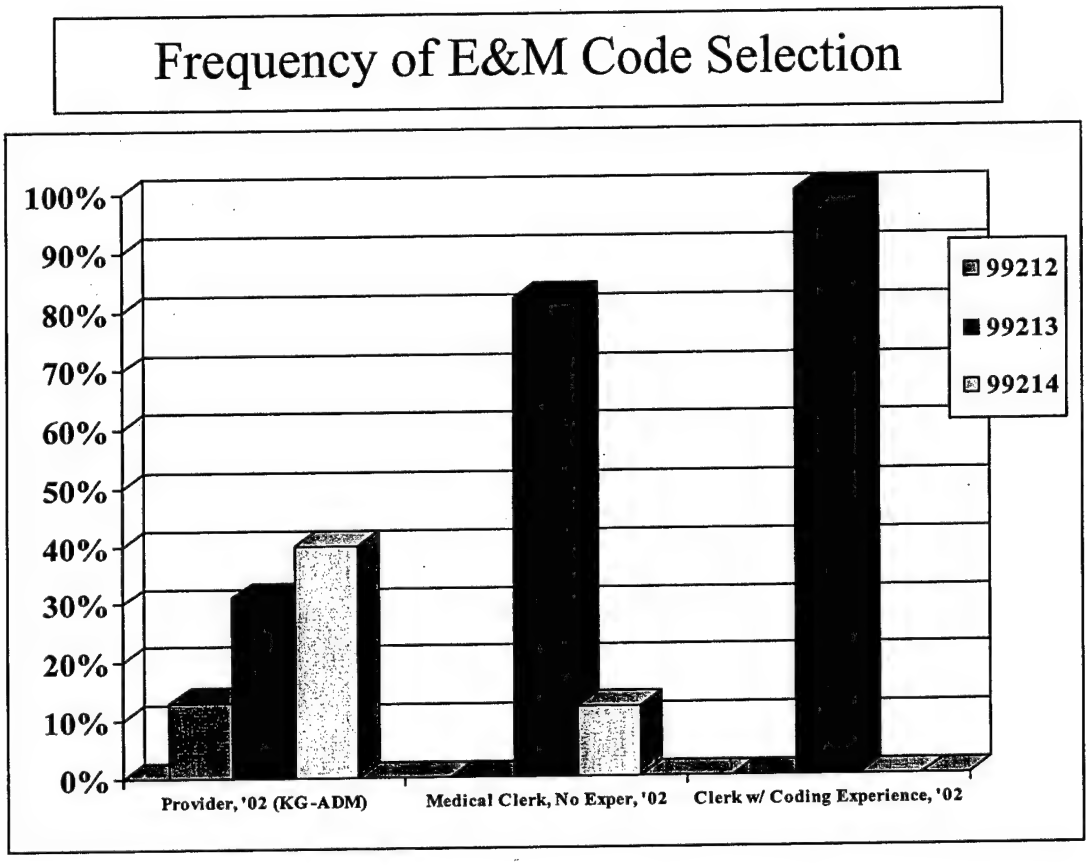
Figure 11. E&M Complexity Coding Accuracy (Providers Compared to Clerks)



Correct: Documentation supported E&M code selected
Inappropriate: Inappropriate category of code used or left incomplete

E&M Coding Accuracy	Correct	Overcoded	Undercoded	Inappropriate
Provider (KG-ADM 2002)	13%	83%	4%	0%
Medical Clerk (no Exper., 2002)	12%	82%	0%	6%
Clerk w/ Coding Exper., 2002	37%	63%	0%	0%

Figure 12. Frequency of E&M Complexity Code Selected (99212, 99213, 99214) (Providers Compared to Clerks)



E&M Coding Frequencies	99212	99213	99214
Provider (KG-ADM 2002)	13%	31%	40%
Medical Clerk (no Exper., 2002)	0%	82%	12%
Clerk w/ Coding Exper., 2002	0%	100%	0%

Table 3. Data Rollup: Coding Selection Frequencies, Comparisons, and Accuracy

DATA SET 1: Coding Input Performed By Provider

100	= Number of Samples
1.81	= Avg # of D/x (Provider)
1.89	= Avg # of D/x (Coding Department)

Correctness of ICD-9 Codes (PPV)

92	= # of ICD-9 Matches to 'Gold Standard'
181	= Total # of KG-ADM D/x Codes
50.8%	

E&M Coding Accuracy		%age
83	= Overcoded	83.0%
13	= Correctly Coded	13.0%
4	= Undercoded	4.0%
0	= Inappropriate	0.0%

Coding Frequency		%age	(Coding Department)	
99212	13	13.0%	66	66.0%
99213	31	31.0%	17	17.0%
99214	40	40.0%	1	1.0%

DATA SET 2: Coding Input Performed By Medical Clerk (No Coding Experience)

17	= Number of Samples
1.12	= Avg # of D/x (Medical Clerk)
2.06	= Avg # of D/x (Coding Department)

Correctness of ICD-9 Codes (PPV)

7	= # of ICD-9 Matches to 'Gold Standard'
19	= Total # of KG-ADM D/x Codes
36.8%	

E&M Coding Accuracy		%age
14	= Overcoded	82.4%
2	= Correctly Coded	11.8%
0	= Undercoded	0.0%
1	= Inappropriate	5.9%

Coding Frequency		%age	(Coding Department)	
99212	0	0.0%	14	82.4%
99213	14	82.4%	3	17.6%
99214	2	11.8%	0	0.0%

DATA SET 3: Coding Input By Medical Clerk with Coding Experience

19	= Number of Samples
1.21	= Avg # of D/x (Medical Clerk)
2.00	= Avg # of D/x (Coding Department)

Correctness of ICD-9 Codes (PPV)

11	= # of ICD-9 Matches to 'Gold Standard'
23	= Total # of KG-ADM D/x Codes
47.8%	

E&M Coding Accuracy		%age
12	= Overcoded	63.2%
7	= Correctly Coded	36.8%
0	= Undercoded	0.0%
0	= Inappropriate	0.0%

Coding Frequency		%age	(Coding Department)	
99212	0	0.0%	12	63.2%
99213	19	100.0%	7	36.8%
99214	0	0.0%	0	0.0%

Table 4. Top 20 ICD-9-CM Code Selections, WRAMC Internal Medicine Clinic (BAAA) (01 Sep 01 - 31 Jan 02)

# of Diagnoses	ICD-9 Code	Description
6249	401.9	HYPERTENSION NOS
1732	272.4	HYPERLIPIDEMIA NEC/NOS
1328	250.9	DIABETES W UNSP COMPL TYPE II
1305	V68.1	ISSUE OF REPEAT PRESCRIPTIONS
1187	V65.40	OTH UNSPECFD COUNSELING
1110	V26.4	GENERAL COUNSELING AND ADVICE
990	V82.9	SCREENING FOR UNSPECIFIED COND
896	250.02	DIAB MELLITUS ADULT/NIDDM NOS
856	250.00	DIABETES MELLIUS WO COMPLIC
796	V65.49	OTH SPECFD COUNSELING
715	V25.01	GENERAL COUNSELING ON PRESCRIP
637	272	PURE HYPERCHOLESTEROLEM
624	401.1	BENIGN HYPERTENSION
614	278	OBESITY, UNSPECIFIED
539	272.2	MIXED HYPERLIPIDEMIA
494	530.81	ESOPHAGEAL REFLUX
484	244.9	HYPOTHYROIDISM NOS
461	V74.8	SCREENING EXAM FOR OTH SPEC BA
455	465.9	ACUTE URI NOS
435	V65.9	UNSPECIFIED REASON FOR CONSULT

27,410 = Total number of KG-ADM Encounters (01 Sep 01 - 31 Jan 02)

Table 5. Top 5 Diagnoses by Percentage, WRAMC Internal Medicine Clinic (BAAA) (01 Sep 01 - 31 Jan 02)

# of Diagnoses	ICD-9 Code	Description	% of Encounters with this Diagnosis
6873	401.--	Hypertension	25.1%
3080	250.--	Diabetes	11.2%
2908	272.--	Hyperlipidemia / Hypercholesterolem	10.6%
2418	V65.--	Counseling - Unspec/Specified	8.8%
1305	V68.1	Issue of Repeat Prescription	4.8%

27,410 = Total number of KG-ADM Encounters (01 Sep 01 - 31 Jan 02)

Table 6. Cross Tabulation Analyses of Data Sets - 1998 and 2002

Category	Raw #	%	Raw #	%	Significance
ICD-9 Coding Correctness	(1998 Data)		(2002 Data)		
# of ADS D/x Codes	222		181		
# of Correct Matches	147	66%	92	51%	**p=.002**

Cross Tabulation

			Total
	147	75	222
	92	89	181
Total	239	164	403

Chi-Square Tests

	Value	df	Asymp. Sig (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi Square	9.782	1	0.002		
Fisher's Exact Test				**0.002**	0.001
N of Valid Cases	403				

Category	Raw #	%	Raw #	%	Significance
E&M Coding Correctness	(1998 Data)		(2002 Data)		
# of E&M Codes	99		100		
# of Correct Matches	21	21%	13	13%	**p=.136**

Cross Tabulation

			Total
	21	78	99
	13	87	100
Total	34	165	199

Chi-Square Tests

	Value	df	Asymp. Sig (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi Square	2.368	1	0.124		
Fisher's Exact Test				**0.136**	0.088
N of Valid Cases	199				